ends." He may therefore learn the necessity for close observation and caution in coming to conclusions. He may find cause for congratulation, too, that he belongs to the "broad church" in medicine, bound by no dogmatic formula to any narrow sect, but allowed the widest latitude of opinion—a latitude which affords at once the fairest opportunity for the development of individual skill, and for the relief of human suffering.

Led on by the interest of the subjects we have selected, and by the desire to give material for judgment as to changes from former editions, we have extended this review far beyond our original intention. We have noted some few omissions, found some things unavoidable in a period of transition, and in adapting a work to present views which was written when other doctrines prevailed, and upon some points have been obliged to differ widely from the authors. Nevertheless, there is but little to find fault with compared with what there is to praise, and perhaps if we said all we felt we might endanger the value of our praise by over-laudation. It is the most complete work upon the subject in our language; it contains at once the results of personal observation and the experience of others; its quotations from the most recent authorities, both home and foreign, are ample; and we think the authors deserve congratulation for having produced a book unequalled for the use of the student, and indispensable as a work of reference for the practitioner. J. C. R.

Art. XX.—*Fourth Report of the Metropolitan Board of Health of the State of New York*, 1869. 8vo. pp. 594. New York: D. Appleton & Co., 1870.

If the application of recognized sanitary principles to the improvement of large cities might have been, a few years ago, regarded as more or less experimental, this is certainly now no longer the case. Besides the remarkable check given to cholera in London, Paris, and elsewhere in 1866, our own cities exhibit a similarly impressive record. In that cholera year the mortality of Philadelphia, owing to sanitary precautions, was 300 less than that of the year before, notwithstanding several hundred deaths ascribed to cholera. And now, the report before us attests that, with an increase of population, the aggregate mortality of New York is decreasing.[1]

That there is need for unremitting efforts of the same kind still, is palpable. In the week ending July 23, 1870 (the hottest week of this year), the number of deaths in New York was 1048, of which more than three-fifths were of children under five years of age, and nearly 400 were from cholera infantum alone. This has been exceeded only once in New York, in the third week of July, 1868; when, with a mean temperature of 88°, the number of deaths was 1142.[2] For the corresponding week of the present year, 1870, the mortality in Philadelphia was 601; of which 352 deaths were of children under the age of five years.

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[1] We find, however, that while in the statement made to this effect (p. 8), the total mortality of New York is put at 24,601 for 1869, in another part of the work (p. 262), the sum for the four quarters is 25,167. The first number is for the twelve months ending October 1, 1869.

[2] Report, &c., p. 252.

But perhaps the most important proof of a satisfactory progress in sanitary improvement, and certainly that which gives the greatest hope for the future, is to be found in the cheerful acceptance and growing appreciation of the measures taken by the Board of Health, by those among whom they operate—the poor and ignorant inhabitants of the worst districts, and the richer, but sometimes little more enlightened, owners of the crowded dwellings.

> "In the quiet, unostentatious visits of the experienced medical Sanitary Inspector sources of disease are discovered and removed, badly ventilated apartments are thrown open and exposed to that source of life and health—*pure air*—which, through interest, cupidity, or ignorance, has been denied admission; habits of personal cleanliness have been inculcated; advice upon general sanitary questions, vital to every person, has been given, and, from its disinterested and acknowledged professional value, has been received in a grateful and appreciative sense by those to whom it was directly and infinitely valuable.
>
> "Looked upon as these visits were, at first, with distrust, as an interference with personal rights, the sanitary inspector is now welcomed into those dark abodes of misery and neglect; doors are thrown wide open, and hidden sources of disease are exposed to his view. His suggestions and advice are received and acted upon to a degree that it was hardly possible to believe. In the inspector they recognize their true friend." (p. 65.)

Such is the language of Dr. Moreau Morris, Assistant Sanitary Superintendent; and it is confirmed by the testimony of nearly all the sanitary inspectors, whose reports, numbering more than twenty, are given in this volume. For brevity, we select only a few passages, from the report of Dr. E. H. Janes:—

> "The results of my three and a half years of experience, as Sanitary Inspector, have been eminently satisfactory. The subject of ventilation, and the improvements made therein, have received full attention, and contributed largely to the comfort and cheerfulness of tenement-house occupants. This is seen in the diminished amount of sickness and mortality in tenement houses since these improvements have been introduced. It is seen in the expressions of satisfaction and gratitude with which the inspector is greeted at his final visit for re-inspection regarding the extent and character of the improvements made. It is also seen in the increased willingness on the part of owners to not only comply with the requirements of the law, but to do whatever may be necessary for the welfare and comfort of their tenants. As a foul atmosphere and filthy surroundings not only beget physical disease and death, but also tend to degenerate the moral and intellectual status of those constantly exposed to such influences, so will pure air, uninterrupted sunlight and cleanliness, conduce to improve the health, increase the physical as well as the moral and intellectual energies, and thus, to a certain degree, elevate the entire condition of the tenement-house population. Owners are beginning to appreciate this fact, and hence are not only willing to comply, but often manifest an anxiety for information concerning the spirit and requirements of the law, without waiting for a formal notice from an officer of the board. By this course they not only comply with the law, and thus escape the penalties, but, by improving the condition of their tenants—morally as well as physically—they prepare the way for a more speedy and available income from their investments." —(pp. 111, 114.)

In one district only, that of the township of Greenburg, has opposition been met with to the action of the Metropolitan Board; and this was due, not to the people of the district, who manifested their desire to obtain its useful service, but to the local official authorities, backed by three or four resident physicians; the antagonism being referred there to political influences.

On the subject of tenement houses there is much interesting matter in this Report. A law passed in 1867 provides that "no dark bed-rooms shall be allowed to exist; but that every sleeping apartment shall, unless open to the air, have transom windows connecting it, either directly or indirectly, with a ventilated hall. Also, that all privies shall have sewer connection; and that all cellars are uninhabitable that do not fulfil certain hygienic conditions." Under this ordinance, the board has closed the most dangerous cellar lodging-houses of the city, thus bringing nearly three thousand of their wretched occupants into more healthful dwellings above ground. With all the care yet taken for their improvement, certain houses yet are "dens of death," and certain streets "death's thoroughfares." Three of these (p. 61) afford a mortality, for particular piles of tenements, at the rate of 40, 59, and 75 deaths annually to 1000 inhabitants. Even in a naturally salubrious locality, as in the 15th Ward, many of these houses present a death-rate of 38 in 1000—double the average mortality of the ward.

The difficulties of ventilation in these houses are very great, because of their construction and crowding; and the right disposal of night-soil, or "conservancy," continues to be a problem. Water-closets are undoubtedly the best, if they are kept in order; but they are not so, in such a population. Lighting, cleansing, and house-drainage are all, as yet, insufficient. For privy use, probably the "school-sink," advocated by Dr. Janes (p. 113), would be the best arrangement in such dwellings. It is a long tank, with an outlet at one end, secured by a plug and a hydrant or draw-cock, for the supply of fresh water at the other end. It needs the care of a reliable person to attend to it daily. Such a contrivance was used with very good effect in some of our United States general hospitals during the war. On all accounts, one of the most important of all tenement-house improvements must be, as urged by Mr. Worthen, engineer of the board, and others, that every owner of tenement houses should be obliged to employ a responsible head or overseer to protect the neat, and compel the dirty to keep clean; and to be accountable to the Board of Health for the execution of its enactments on the premises. For garbage, Dr. Morris, assistant Sanitary Superintendent, approves, and carries out, at his own house, the disposal of it all by burning. Mr. Worthen thinks that, in the tenement houses, "if in every suite of apartments there were ready means of getting rid of all liquid waste into the sewer-pipe, all the garbage might be disposed of in the cooking-stove." Reference is made in a note to an invention of W. R. Gilbert, Darjeeling, India, for burning the products of dry sewerage, as well as to Hickey's process of "carbonization or dry distillation;" by which, conducted in close retorts, a gas is made, useful for illumination or for heating furnaces. The poudrette left is said to be innoxious, and a good fertilizer.

As to tenement-house mortality, Drs. Harris and Norton remark upon the instructive fact that the gain to life of the city, in the midsummer period, of 1869 over 1868, occurred as a whole *in the tenement houses;* the total gain in these dwellings exceeding the aggregate difference in the mortality tables for the period in the two years. (p. 253.) It is to be remembered that a very large proportion of those who die in hospitals, and other public institutions, are sent thither from the tenement-house population. In these, also, similar facts appear.

> "In 1868 the percentage of deaths in the public institutions was 17.33;[1] in 1869 it was 16.15, a gain of 1.18 per cent.
>
> "In 1868 the percentage of deaths in the private houses, hotels, boarding-houses, and other residences of New York, other than tenement houses, was 24.21; in 1869 it was 31.06, a loss of 6.85 per centum.
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> "In the former year the percentage of deaths in tenement houses was 58.46; in the latter it was 52.79, a gain of 5.67 per centum." (p. 345.)

Putting these statements together, we find that it is almost exact to say that while the total mortality to be ascribed to the tenement houses in 1868 was 75.79 of the whole mortality of the year, in 1869 it was only 68.94, a gain of 6.85 per cent. Dr. Norton employs another graphic mode of expression for his estimate of sanitary improvements already accomplished, in these words (p. 337):—

> "Whereas 39,272 windows were put into dark bed-rooms of tenement houses during the year; and whereas, there was a saving of 1265 lives in that portion of the population that lives in tenement houses, it follows that one life was saved for every thirty-one windows so constructed."

If this be an approximation only, as of course must be the case, yet it is not likely to be an exaggeration of the real benefit conferred by such improvements.

Under the head of "Contagious and Infectious Diseases," the Report mentions repeated outbreaks, of moderate extent, of both typhus and typhoid fever. They were traceable to certain "centres," spreading thence, as alleged, by personal communication. In the case of typhoid, this is expressed by Dr. E. Harris, the Sanitary Superintendent, as occurring by "the movement of the sick, or of their attendants, who in turn became sick." These sources of fever were promptly controlled by sanitary means; the chief of which was repeated and abundant disinfection, with heavy oil of coal tar and sulphate and sesquichloride of iron. Relapsing fever does not appear to be named anywhere in this Report. The greatest amount of interest centres upon the progress of, and successful conflict with, an epidemic of smallpox. At the beginning of the year an increase in the amount of this disease led to the public announcement by the Board of its advice to all to attend to vaccination, with the offer of it, gratuitously, at certain hours and places. But the classes and individuals most requiring protection were not thus reached. In May the contagion was found to be lurking in nearly a hundred different localities in the city. Then the Board, very wisely, undertook general vaccination, by systematic house to house visitation. This was accomplished by eighty physicians, of whom sixty were especially appointed for the purpose. Nearly one hundred and seven thousand families, and thirty thousand houses, were thus visited, making the needful inspection of almost half a million of the population of the city, and actually vaccinating more than thirty thousand. No coercion or intimidation was used, but all were invited and urged to avail themselves of the protection of vaccination against the threatening prevalence of smallpox. The material employed was carefully selected by all the vaccine physicians of the city; *eighth-day lymph* only being used, not more than thirty-six hours from the arm; and the result was inspected at the end of a week in all cases. The lancets used were frequently cleansed with carbolic acid.

In consequence of this thorough work, it is stated (p. 209), that "smallpox, which threatened to overspread the city, was at once arrested, with the exception of here and there an isolated case, exceptions always to be met with in a cosmopolitan city, independent of any epidemic influence."[1]

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[1] That is, per cent. of the whole annual mortality.

We are clearly justified in contrasting this result with the well-known history of the fearful epidemic of smallpox during the present year, in Paris; where, with deaths numbering, from this cause, between one and two hundred in a week (in one week in July, 267), a total of more than seven thousand cases occurred between January and May, with a mortality, in the hospitals at least, of one death in six or seven cases. There is ample reason to believe that all this was due to the *unsettlement of public confidence* in vaccination, brought about, especially, by exaggerated statements and rumors concerning vaccinal syphilis. Upon this subject, we have at hand an exhaustive *résumé*, by M. Brouardel,[2] from which we may cite the conclusion given by M. Depaul, in his report published in 1865.

> "I do not suppose that it will come into the mind of any one, that we are to renounce the immense benefits of vaccination. Millions have been inoculated with vaccinia; and although it has been already too often repeated, vaccinal syphilis constitutes at last but a very rare exception."

All the best authorities now agree that it is never the vaccine virus, but *blood* taken improperly with it, that accounts for this rare danger. Brouardel adds, that "almost in the immense majority of cases a syphilitic 'vaccinifère' does not give syphilis to those inoculated from it." In the Paris hospitals, according to the same writer, *cow-pox* is used exclusively. If this be altogether or in part obtained by inoculating the heifer with human variolous matter, this may make a difference in the result. Chauveau's elaborate experiments,[3] attested by a committee consisting of MM. Viennois, Meynet, Delore, Lortet, &c., have shown that variolous inoculation of the cow does not cause vaccinia—often no eruption at all—and that what does occur is variola, and has produced smallpox in children inoculated from its pustules. Danet[4] of Paris, after an independent investigation, arrived at the same conclusion; and so did Dr. Cutter, of Boston, who, after inoculating fifty cattle with virus of smallpox with no eruption, vaccinated the same animals with the true, spontaneous cow-pock virus, and had the characteristic vaccine disease to follow. Our reason for making these citations is not only the importance of their subject, but the fact that Dr. E. Harris differs (p. 215 of *Report*) from the judgment given by Dr. Loines in the Report of the same Board for last year, in favouring the renewal of the stock of vaccine virus by smallpox inoculation of the heifer. The strong doubts existing as to the validity of this process, and its many inconveniences even if reliable, ought, we believe, to exclude it from use; while the occasional *rejuvenescence* of the current supply of virus from *spontaneous vaccinia* of the cow stands upon quite other grounds, and is justifiable and desirable, although degeneration of the human virus, with proper care, has not yet been proved to occur. At all events, the experience of New York in the past year confirms the truth of the general principle, that *the prevalence of smallpox is in inverse proportion to the universality of vaccination.* In J. Simon's words,[1] "A local prejudice against vaccination would be a reason for inquiring into the skill with which, in the prejudiced locality, vaccination had been administered." A full observance of the "Jennerian" rules everywhere is alone required, we believe, to obtain the fulfilment of Jenner's own prediction, that the annihilation of smallpox must be the final result of the practice.

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[1] Referring to the statistical tables of the Report, however (pp. 250, 254, 259), we regret to find no explanation of the fact, that while the deaths from smallpox in the 13 weeks ending July 3d, were 45, and in those ending October 3d, 32, in the last quarter of the year, ending December 31st, they were 109. Of these deaths, 70 occurred in two wards, in which very few cases occurred early in the year; possibly, therefore, in them, vaccination may have been less complete.

[2] Revue des Cours Scientifiques, 25 Decembre, 1869, *et seq.*

[3] Revue des Cours Scientifiques, 1 Jan., 1870.

[4] London Medical Times and Gazette, Feb. 23, 1867.

Another subject upon which it is natural to look to this report for information, and some discussion of principles in view of recent facts, is Quarantine. The most direct reference to it (pp. 28, 29) is very brief. As to yellow fever, the following language occurs:—

> "Vessels from the West Indies frequently brought yellow fever into port during the summer months, but the care taken at quarantine to cleanse and disinfect them was so efficient, that the public health suffered no detriment from this cause."
>
> Again, pp. 48, 49: "The restraints which are placed upon ships and goods from ports infected with yellow fever, under the requirements provided in the Code of Health Ordinances, were applied as leniently as could be justified." "This scourge may justly continue to be dreaded, though it seldom strikes. It does not respect sanitary regulations nor medical skill in such manner as to warrant any relaxation of the rule which excludes the infected ships from the docks in the commercial districts of New York and Brooklyn. Fortunately the sanitary art of protecting ships and cargoes against infection may yet be so practised as to give greatly increased, and perhaps, perfect security against this scourge of the American tropics."

It is also mentioned that some of the emigrant ships having fatal typhus and scurvy on board gave more anxiety, and did more harm this year, than all the yellow fever that has reached the port of New York in the past three years. Waterside inspection now generally finds the sanitary condition of vessels from the West Indies good. Hard-earned experience of gulf-traders has taught many of them, that cleanliness in every part of the ship is essential to health; and their vigilance is reinforced by the severe restrictions of quarantine.

It may be wise to avoid unnecessary discussion of the nature and occasion of these restrictions, the topic having sometimes given rise to popular agitation. But late facts show that the much-to-be-desired harmony between the interests of commerce and sanitary regulations has not yet been reached. During the present summer several vessels, destined for New York, being restrained by quarantine, put off their cargoes at Perth Amboy, New Jersey. One of these (the barque *Wavelet*) was afterwards forcibly seized under the orders of Dr. Carnochan, health-officer, and hence has resulted litigation on the part of her owners. The local dangers of quarantine have also been painfully demonstrated this season near Philadelphia by the infection of the lazaretto, from a West India brig (the *Home*) detained there; the port-physician, Dr. Thompson, the resident nurse, and several others losing their lives by the disease. It illustrates somewhat the *local* nature of this infection to observe, not only that these cases all occurred near the site of the tainted vessel (two men who left being, soon after, taken ill in the city, and dying without any other cases following); but, further, that the local sanitary condition of the lazaretto on the Delaware is worse this year than ever before, being made so by the unprecedented flood of last year, the subsidence of which left an unusual amount of vegetable matter to decompose. Thus, a *nidus* was afforded for the transported miasm of the infected ship.

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[1] Blue Book, 1857.

Not proposing to enter into an argument on this subject (although, as above intimated, the debate upon it has been so far only adjourned, not finished), one or two reminders may perhaps not too much anticipate the time when it may be forced again upon the attention of the profession and the public. In the quotations made in the Report before us from the Health Ordinances of New York, nothing is mentioned to show whether persons as well as cargoes are detained at quarantine. But we may take it for granted that they are so, without direct information, as such was certainly the case with vessels detained on account of cholera in 1866; when, on one vessel (the *Virginia*) so held, more deaths occurred from that disease at quarantine than had taken place during the voyage. To say nothing of this danger to life—we might rather say this almost certain condemnation of a number of those on board to death—the presence of the whole population of a vessel must interfere with its thorough purification and disinfection. Every sound reason, therefore, sustains the propriety of the resolution passed, almost unanimously,[1] by the Third National Quarantine and Sanitary Convention, held in New York in 1859. The substance of this was, "that the personal quarantine of cases of yellow fever may be safely abolished, provided that *fomites* of every kind be rigidly restricted."[2] Among those who most strongly urged the passage of this deliberate declaration, on the ground of *experience*, was Dr. E. Harris, the present Sanitary Superintendent of New York, always one of the most enlightened advocates of reform in public hygiene. Farther back, however, in the medical literature of this country, in a communication in this Journal[3] more than forty years ago, Dr. Griffith foreshadowed what, we venture to believe, will be the ultimate conclusion of sanitary science upon the subject. In that paper, after rightly insisting that all vessels from tropical climates, whether from healthy or unhealthy ports, should be obliged to stop at quarantine until thoroughly cleansed and ventilated, Dr. Griffith adds: "*Passengers should be permitted to leave quarantine*, unless when labouring under disease." This is the yet lacking reform. For the place of inspection and purification of vessels, it is undoubtedly of importance that a locality be chosen, as is the case with the quarantine anchorage off Staten Island, at a considerable distance from the city—if possible, remote from any inhabited locality.

Many other topics, dwelt upon at some length in this Report, might detain us, not without interest; as, the Year's Vital Statistics, including those of marriages and births; experimental investigation of the condition of the air in schools, theatres, &c.; the quality of Croton water, and of city milk; the prevention of the dangers of kerosene oil; the gas nuisance, disinfection, and sewerage. We can ask the reader's attention only to very brief remarks upon a few of these subjects. The carefully prepared report of the register clerk, J. Bowne, upon marriages and births, confesses the yet great imperfection of the returns, although they improve somewhat from year to year. Nothing positive can, therefore, be based upon them. We may merely say, in passing, that the figures (pp. 359, 360), as given, rather favour than oppose the theory of Dr. N. Allen, that the foreign-born population of our cities affords a larger proportion of births than the native families.

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[1] On motion of Dr. A. H. Stevens, of New York.

[2] Proceedings, &c. of the Third National Quarantine and Sanitary Commission, New York, 1859.

[3] American Journal of the Medical Sciences, Nov. 1827.

Physiologists as well as sanitarians may find interest in the investigation elaborately made by C. F. Chandler, Ph. D., chemist to the board, into "the sources of unhealthfulness in crowded assemblies" of the metropolis. The most particular attention was given to the comparative amount of *carbonic acid* in the places examined. After comparing, for this purpose, the processes of Brunner, of Regnault, Bunsen, and of De Saussure and Pettenkofer, Dr. Chandler declares his preference for a modification of the method of Regnault. Its essential principle is the absorption of the carbonic acid by caustic potassa, and the measurement of the amount of this gas absorbed, by the rise of a column of water in a graduated tube. By this apparatus a large number of schools and theatres were inspected; some of the former yielding six, seven, or eight times, and some of the latter twelve—even fifteen times (Bowery theatre, *parterre*) the normal proportion of carbonic acid. It is further observed that "when the different portions of a room were at different temperatures, the greater proportion of carbonic acid was most frequently found in the warmest localities." This was the case with the air near the heating apparatus (steam-coils), and "air taken from near the ceiling was always found more highly charged with carbonic acid than that in the lower portions of a room, and the difference was often very marked." (p. 400.) Great care was evidently taken in these experiments; so that it is with hesitation, and not without distrust, that the inquiry suggests itself whether, as the method of measurement was by diminution of volume under absorption of carbonic acid, it was not possible for the change of temperature itself, notwithstanding the precautions taken, to account for a part of this diminution of volume of the air on immersion in water. The results are certainly interesting; and no one can deny their accuracy, fairly, without their repetition under at least as favourable circumstances. "The churches," Dr. Chandler writes, "shall be held sacred from criticism." Sufficient reason for this will not be apparent, to those who have met, in some places of worship, with an atmosphere quite unfit for healthy respiration. Neither were the tenement houses visited for this kind of exact inspection. This may be regretted, in view of the statistics of the subject, as we are told in another part of the volume (p. 88), of sleeping rooms with but 100, and living rooms with but 175 cubic feet of space; the average of nearly eight hundred such houses being, for living rooms, 370, and sleeping rooms 220 cubic feet of air space.

Of the "city milk" of New York the result of the examination is to show that no "injurious" adulteration at present exists in it; but that, on the average, to every three quarts of pure milk there is added one quart of water. Dr. Chandler estimated that this fraudulent addition costs its consumers annually about four millions of dollars.

The "gas nuisance" occupies more than a hundred pages of the Report before us; much of it in fine print. The bulk of this consists of the evidence given at a hearing before a referee of the "Metropolitan Gas Company," whose process was condemned as a nuisance by the Board of Health. We may spare our readers even an abstract of this testimony. From an attentive reading we gather that it shows the "wet lime" process to be the most offensive; the "dry lime" to be attended also with stench from time to time; while the use of hydrated sesquioxide of iron, with sulphate of lime and sawdust (Laming's method), or that of "bog-iron ore," is free from foul odours. Yet it does not appear, from the evidence of Professors Silliman, Rand, and Wurtz, and from that of Professor Odling, previously published, that the odours of gas-works, even with the lime process, are entitled, however disagreeable, to be called serious nuisances in the sanitary sense—that is, deleterious to health.[1]

Passing with some reluctance over the remaining by no means unimportant matter of this volume, we may recur, in conclusion, to the great advantage possessed by the city of New York in the establishment of laws conferring real authority upon its Board of Health—a condition of things dating only from 1866, and indeed matured only after a severe struggle between some purely selfish interests and those of the community at large. Vast as the field of operation is, the Board does not yet congratulate itself upon overcoming nearly all its difficulties. In the words of Assistant-Sanitary Superintendent Stiles (p. 229):—

> "When the well-paved streets of our city are swept or flushed every morning before daylight, and, at the same time, every dead animal and all ashes, garbage, and filth are removed; when a few large abattoirs take the place of numerous scattered slaughter-houses; when gas companies locate their works far out in the country; when livery-stables empty manure-vaults at night: when factories of all kinds consume their own smoke and fumes, or carry them high into the air; when cow-stables have been banished, and condensed-milk establishments have multiplied among the rich farms around the metropolis; when places of public resort are supplied with special and adequate provision for ventilation; when no tenement houses exist which do not subserve the health of their occupants as well as the gain of their owners; when every house and lot in the city shall be sewered and drained; when free public baths shall be provided; when unwholesome or adulterated food shall not be exposed for sale, for fear of detection and punishment; when all these very practicable and desirable results shall have been obtained, there will still remain abundant demand for watchfulness on the part of the sanitary authorities to hold fast what has been gained, and to improve what is still inadequate and imperfect."

Remembering that the important work of cleaning the streets is not yet under the control of the Board of Health, and that the vexed questions of quarantine and sewage utilization have not yet been fully settled, it is easy to realize the necessity for continued effort, which is thus forcibly set forth. But a large obligation is already due to the members of the New York Metropolitan Board, for using so well their opportunity to apply, and thus most effectually to advance, enlightened sanitary science.

H. H.

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[1] The suggestion that the air of gas-works is preventive of epidemic cholera cannot be fully verified. In 1849 the writer of this review attended, in an attack of well-marked cholera, a man employed as one of the hands at the Philadelphia gas-works, where the lime process is used.